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**REMARKS**

The present application includes claims 1-44. Claims 39-44 are new. Claims 1, 7-14, 20, 26-28, 30 and 32 were amended. Claim 26 was amended into independent form.

The amendments to claims 1 and 28 find support at least on page 2, line 24, page 4, line 18 and page 8, line 32. The amendment to claim 30 finds support on page 2, lines 14-16. The other amendments were made for clarity and to emphasize what was already in the claims, that the signals referred to are collected through the interface.

**Independent claim 1**

Claims 1-3 and 6-9 stand rejected under 35 USC 102(e) as being anticipated by Van Den Brink et al. (US patent publication 2003/0174765).

Claims 4-5 stand rejected under 35 USC 103(a) as being unpatentable over Van Den Brink et al. (US patent publication 2003/0174765).

Claim 1 was amended to require determining an information content of one or more signals transmitted between the end modems, responsive to the collected signals. This is not taught or suggested by Van Den Brink, which only mentions use of a level detector 5, such as a spectrum analyzer or an rms volt meter (paragraph [0090]). These may be used to evaluate noise levels, not to determine the information content of signals transmitted between the end modems.

With reference to claim 7 the Examiner referred to Fig. 7 of Van Den Brink as disclosing displaying the contents of one or more modem negotiation signals. Applicant respectfully disagrees: Fig. 7 of Van Den Brink shows, on the right column, power levels and voltages, not information content of signals transmitted between the end modems. In contrast, applicant refers the Examiner to Figs. 4A-4D of the present application, which show many non-limiting examples of information content. For example, Fig. 4A of the present application shows on the left side the content of signals transmitted during a handshake procedure. Fig. 4D of the present application shows in the left column another listing of content of transmitted signals. These examples are totally different from the display of Van Den Brink which only shows power and voltage levels of noise.

The dependent claims are allowable at least by virtue of their parent claims. Nonetheless, at least some of the dependent claims add further patentability over Van Den Brink.

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Claim 9, for example, requires suggesting possible sources of the noise. Claim 9 was amended to make explicit what was already implicit in the claim, that the suggesting is performed by a processor. With regard to this claim, the Examiner referred to paragraphs 5-8 of Van Den Brink. Applicant respectfully traverses the rejection and states that the Examiner has not established a *prima facie* rejection of claim 9. In paragraphs 5-8, Van Den Brink lists different types of noises and their sources, in order to explain what types of noise need to be generated by a device for generating impairment (paragraph [0010]). Van Den Brink does not teach or suggest suggesting possible sources of noise responsive to signals collected from a communication line, as required by claim 9 as dependent on claim 1.

**Obviousness rejections - Zuranski**

Claims 10-12, 14-15, 17-18, 20-25 and 27 stand rejected under 35 USC 103(a) as being unpatentable over Van Den Brink et al. (US patent publication 2003/0174765) in view of Zuranski et al. (US patent 6,445,733).

Claim 16 stands rejected under 35 USC 103(a) as being unpatentable over Van Den Brink et al. (US patent publication 2003/0174765) in view of Zuranski et al. (US patent 6,445,733) and further in view of Fujiwara et al. (US patent publication 2001/0013809).

Applicant respectfully traverses the rejection and submits that the Examiner has not established a *prima facie* rejection, as it would not be obvious to combine Zuranski and Van Den Brink and even if such a combination were performed it would not result in the claimed invention.

Van Den Brink relates to modem testing apparatus connected to a test loop between a pair of modems under test. Zuranski, on the other hand, relates to a set of modems (col. 4, lines 24-37). The Examiner has not given any motivation or teaching in the art to perform modem acts in the modem testing apparatus of Van Den Brink, which relates solely to testing based on noise impairments. As CPU 9 of Van Den Brink is connected to the tested modems 6 and 7, it is clear that if Van Den Brink would want to perform any of the tests of Zuranski, they would be performed by tested modems 6 and 7 and not through voltage probe 4. Thus, even if Zuranski and Van Den Brink were combined, they would not result in performing the acts of dependent claims 10-12, 14-18, 20-25 and 27, as these acts would be performed by the tested end modems.

Applicant notes that in view of the amendment of claim 1, claim 1 requires determining an information content responsive to signals collected through a line interface

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connected to a communication link between a pair of end modems. As mentioned above, if Zuranski and Van Den Brink were combined, the information content would be collected by the end modems and not through the line interface.

In addition, the limitations of some of the claims are not even taught by Zuranski.

Regarding claim 10, the Examiner stated that Zuranski teaches providing information on effects in upper physical layers caused by the noise levels on the connection. Claim 10 was reworded to clarify what was already originally implied, that the processor is required to match noise at a specific time with effects in upper layers. The claim was also broadened by removing the requirement that the upper layers are physical layers. An exemplary embodiment of this limitation is described on page 11, lines 5-11.

Applicants respectfully traverse the rejection and submit that the Examiner has not established a *prima facie* rejection, as Zuranski does not teach or suggest providing information on effects in upper layers caused by the noise levels on the connection. Furthermore, it would not be obvious to combine Zuranski and Van Den Brink.

Zuranski (col. 8, lines 15-25) describes error correction methods used by modems to identify errors or correct errors. Zuranski does not teach or suggest matching effects in upper layers with noise levels at specific times. All Zuranski suggests is determining whether there was an error on the line.

Regarding claim 12, the examiner stated that "since the modems are coupled to a computer, and the computer has a display means, we can therefore conclude that this information can be view from the computer". Applicant respectfully disagrees and submits that not all signals passing on a modem connection are displayed on the computer. In fact, in general, only information content is displayed and not signaling signals.

Claim 27, for example, as amended, requires extracting the data transmitted on the connection from the signals collected through the line interface. The amendment merely makes explicit what was implicit in the claim, that the data is extracted from signals collected through the line interface.

While Zuranski does extract the data, it does so through the modems and not through a line interface between the modems. Van Den Brink does not extract the data at all, and since CPU 9 is connected to the modems, if it were to collect data it would do so through the modems.

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Claim 18 requires that the injected noise that forces the retrain does not interfere with voice frequency bands.

The Examiner referred to the test signal of Zuranski, which could be noise, that does not interfere with data transmission. Applicant notes, however, that in Zuranski the noise is not noise which forces a retrain, as required by claim 14, on which claim 18 depends. The noise in Zuranski is on a test channel and does not interfere with the data transmission (col. 14, lines 25-30). Noise that is not intended to disrupt any channel obviously does not disrupt voice frequency bands.

### **Claims 13 and 19**

Claim 13 stands rejected under 35 USC 103(a) as being unpatentable over Van Den Brink et al. (US patent publication 2003/0174765) in view of Wang et al. (US patent 6,523,233).

Claim 19 stands rejected under 35 USC 103(a) as being unpatentable over Van Den Brink et al. (US patent publication 2003/0174765) in view of Fisher et al. (US patent publication 2004/0047407).

These claims are patentable at least by virtue of their parent claim. Nonetheless, at least some of the claims add further patentability over the art.

Claim 13 requires performing signal tests on test signals transmitted on the connection and comparing the results of the tests to negotiation signals reporting test results from one of the modems. Applicant amended claim 13 to make explicit, what was already implicit, that the tests are performed on the signals connected through the line interface.

A comparison of test results performed on collected signals with test results performed by one of the modems is not taught or suggested by the art. Wang describes performing a test by a modem, by comparing a received signal to a known format of the transmitted signal (col. 4, lines 20-26). Nowhere do Wang or Van Den Brink describe performing tests on signals collected not by the end modems and comparing the results to those performed by a modem.

### **Claim 26**

Claim 26 stands rejected under 35 USC 103(a) as being unpatentable over Van Den Brink et al. (US patent publication 2003/0174765) in view of Hagane (JP patent publication 409139768).

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Claim 26 was converted into independent form. The claim requires providing a warning on a possible tapping of the communication link, responsive to analysis of signals collected through a line interface between end modems.

In contrast, Hagane does not teach or suggest providing a warning on possible tapping responsive to signals on a communication link between end modems, but rather performs the detection at a telephone set or through an antenna. In addition, Van Den Brink relates to testing modems. There is no reason to use testing apparatus to detect tapping as tapping has no purpose at the time of testing, which is generally performed before the modems are put into service.

**Independent claim 28**

Claim 28 stands rejected under 35 USC 102(e) as being anticipated by Van Den Brink et al. (US patent publication 2003/0174765).

Claim 29 stands rejected under 35 USC 103(a) as being unpatentable over Van Den Brink et al. (US patent publication 2003/0174765) in view of Zuranski et al. (US patent 6,445,733) and further in view of Fujiwara et al. (US patent publication 2001/0013809).

Claim 28 was amended to require that the processor is adapted to determine an information content of one or more signals passing on the modem connection. In parallel, the claim was broadened by removing the requirement that the determination relates to quality or transmission characteristics.

As discussed above regarding claim 1, Van Den Brink only mentions use of a level detector 5, such as a spectrum analyzer or an rms volt meter (paragraph [0090]). These may be used to evaluate noise levels, not to determine the information content of signals transmitted between the end modems.

Dependent claim 29 is allowable at least by virtue of its parent claim.

**Independent claim 30**

Claims 30-31 stand rejected under 35 USC 102(e) as being anticipated by Van Den Brink et al. (US patent publication 2003/0174765).

Claim 32 stands rejected under 35 USC 103(a) as being unpatentable over Van Den Brink et al. (US patent publication 2003/0174765) in view of Zuranski et al. (US patent 6,445,733).

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Claim 30 was amended to require that the signals are collected during a collection session in which signals are not injected through the line interface onto the communication link, except possibly noise adapted to cause a retrain.

This is not taught or suggested by Van Den Brink, which only describes a test session in which an impairment generator injects noise which stresses the modems ([0084], [0094]-[0096]). In paragraph [0093], Van Den Brink states that some measurements are performed without injecting noise, probably for a single to noise comparison, but these periods of not injecting noise do not meet the limitations of claim 30.

The dependent claims are allowable at least by virtue of their parent claims.

**Independent claim 33**

Claims 33-38 stand rejected under 35 USC 103(a) as being unpatentable over Van Den Brink et al. (US patent publication 2003/0174765) in view of Zuranski et al. (US patent 6,445,733) and further in view of Fujiwara et al. (US patent publication 2001/0013809).

Applicant respectfully traverses the rejection and submits that the Examiner has not provided a *prima facie* rejection, since none of the cited references connects a circuit which disrupts transmission of signals in a manner forcing a retrain.

In Zuranski, the retrain is performed by end modems (claims 8, 21 and 25, col. 4, lines 24-37) and there is no circuit connected between the two end modems to provide noise (see Fig. 2). In Van Den Brink, the injected noise is used to test the line and not to force a retrain. Forcing a retrain requires higher noise levels which are useless for line testing. Fujiwara does not relate to the field of modems at all.

Furthermore, there is no teaching in the art cited by the Examiner to combine Fujiwara and Van Den Brink. These references relate to totally different fields and have totally different objects. Van Den Brink is directed at testing a communication line, while Fujiwara is directed at suppressing the occurrence of inter-modulation distortion (paragraph [0004]).

The dependent claims are allowable at least by virtue of their parent claims. Nonetheless, at least some of the dependent claims add further patentability over the cited art.

Claim 34, for example, requires determining a frequency band including a pilot tone to be disrupted in order to force the retrain, and (as stated in the parent claim 33) connecting a circuit which disrupts the frequency band including the pilot tone.

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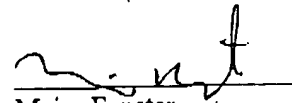
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Zuranski, to which the Examiner related, does not connect a disrupting circuit in order to induce a retrain. The line characteristics referred to on col. 5, lines 17-29, have nothing to do with determining a frequency band to be disrupted.

**Conclusion**

In view of the above remarks, applicants submit that the claims are patentable over the prior art. Allowance of the application is respectfully awaited. If, however, the Examiner is not convinced and the Examiner is of the opinion that a telephone conversation may forward the present application toward allowance, applicants respectfully request that the Examiner call the undersigned at 1 (877) 428-5468. Please note that this is a direct *toll free* number in the US that is answered in the undersigned's Israel office. Israel is 7 hours ahead of Washington.

Respectfully submitted,



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Date: March 26, 2007

**Encl.:**

Petition for Extension of Time (2 Months)  
Additional Claim Fee

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